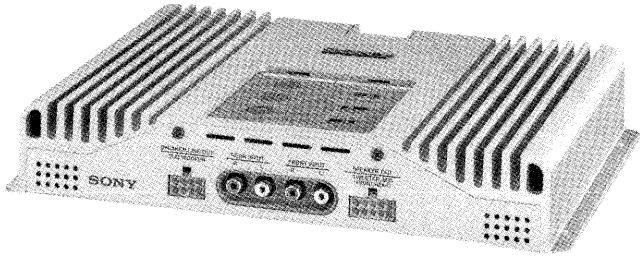
XM-C2000

US Model
Canadian Model
AEP Model
E Model
UK Model



SPECIFICATIONS

Power supply system
Pulse power supply circuitry
Speaker impedance
2 – 8 ohms
Maximum power output (4 ohms)

High/Front speaker	Mid-range/ Rear speaker	Sub-woofer	
		stereo	monaural
65 W × 2	65 W × 2	65 W × 2	200 W

Rated power output at 14.4 V battery voltage (4 ohms) (Ad Hoc Commitee standards)

High/Front speaker	Mid-range/ Rear speaker	Sub-woofer	
		stereo	monaural
30 W × 2	30 W × 2	30 W × 2	80 W
70 Hz – 20 kHz 0.04% THD	70 Hz – 20 kHz 0.04% THD	20 – 140 Hz 0.04% THD	20 – 140 Hz 0.1% THD

Frequency response
High/Front: 70 Hz – 100 kHz ($^{+0}_{-3}$ dB)
Mid-range/Rear: 70 Hz – 100 kHz ($^{+0}_{-3}$ dB)
Sub-woofer: 5 – 140 Hz ($^{+0}_{-3}$ dB)
(Sub-woofer line output: 5 – 140 Hz)
Harmonic distortion
Less than 0.005% 4 ohms
(Sub-woofer line output: less than 0.003%)
Input level adjustment range
0.2 – 2 V
Signal-to-noise ratio
More than 108 dB (IHF-A, WTD)

Crossover frequency
High/Mid-range crossover point
3.5 kHz, 5 kHz, 7 kHz
Front (2-way only)
HPF: 70 Hz, 100 Hz, 140 Hz
Mid/Rear
HPF: 70 Hz, 100 Hz, 140 Hz
Sub-woofer
LPF: 70 Hz, 100 Hz, 140 Hz
Sub-woofer line output
LPF: 70 Hz, 100 Hz, 140 Hz
Crossover slope
12 dB/oct (Crossover point)
6 dB/oct (Front, Mid/Rear HPF)
18 dB/oct (Sub-woofer LPF)
Power requirements
12 V DC car battery (negative ground)
Source voltage 10.5 – 16 V
Current drain 27 A (at rated output)
30 A (at 10% THD)
Dimensions Approx. 296 × 50 × 209 mm (w/h/d) ($11\frac{3}{4} \times 2 \times 8\frac{1}{4}$ in.)
Mass Approx. 2.8 kg (6 lb. 3 oz.)
Accessories supplied
Mounting screws (4)
Protection plate (1)
Speaker leads (2 sets)

Design and specifications subject to change without notice.

STEREO POWER AMPLIFIER

SONY®

Features

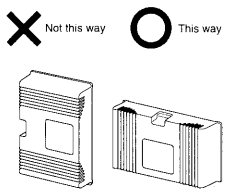
- The built-in 2/3 way switchable crossover network enables you to enjoy the multi-way speaker system with easy installation.
- Powerful output of 65 watts × 6 max. (50 watts × 4 + 200 watts max. at 4 ohms with 5 channel connection).
- Pulse power supply* for stable and regulated output power.

Pulse power supply

This unit has a built-in convertor which converts the power supply from the DC 12 volt car battery into high speed pulse signals by the use of the semiconductor switch. These signals will be stepped up by the built-in pulse transformer and separated into both positive and negative power separated into both positive and negative power supplies before converted into the direct current again. This is to regulate the otherwise variable voltage of the car battery. This light weight power supply system provides the highly efficient power supply with low impedance output.

Precautions

- This unit is designed for negative ground 12 V DC operation only.
- Use speakers with impedance of 2 to 8 ohms.
- Avoid installing the unit where it would be subjected to:
  - high temperatures caused by direct sunlight or hot air from the heater.
  - rain or moisture.
  - dust or dirt.
- Be sure to select the setting for either the 2-way or 3-way system before installing the unit.
- When installing the unit vertically, make sure that the fins of the heat sink are vertical to the floor.



- When installing the unit horizontally, make sure that the fins are not covered by the floor carpet etc..
- If the unit is installed too close to a car radio, it may cause interference in radio reception. In such a case, place the unit away from the radio.
- If your car is parked in direct sunlight and there is a considerable rise in temperature inside the car, allow the unit to cool off before operating.
- The unit has a built-in protection circuit* to protect the transistors and speakers if the amplifier malfunctions. However, do not attempt to test this protection circuit by covering the head sink or overloading the connections.
- For safety reasons, keep the volume of the car audio moderate so that you can still hear the sound outside your car.

If you have any questions or problems concerning this unit that are not covered in this manual, please consult your nearest Sony dealer.

Location and Function of Controls

• Protection circuit

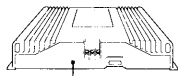
This unit has a built-in protection circuit which operates in the following cases when:

— the unit is overheated

— a DC current is generated

— the speaker terminals are short circuited.

When the protection circuit is activated, the color of the POWER/PROTECTOR indicator will change from green to red and the unit will shut down. If this happens, turn off the connected equipment and take out the cassette tape or CD and determine the cause of the malfunction. If the unit has overheated, wait until the unit cools off.



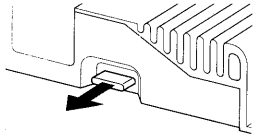
POWER/PROTECTOR indicator

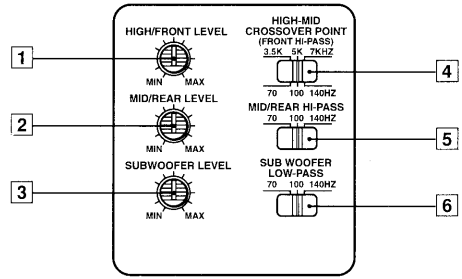
Fuse Replacement

If the fuse blows, check the power connection and replace the fuse. If the fuse blows again after the replacement, there may be an internal malfunction. In such a case, consult your nearest Sony dealer.

Warning

Use the specified amperage fuse.
Use of a higher amperage fuse may cause serious damage to the unit.





1 HIGH/FRONT LEVEL (output) control
For adjusting the output level of the high frequency audio signal or that of the front speakers.

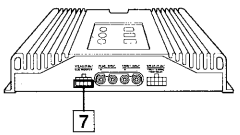
2 MID/REAR LEVEL (output) control
For adjusting the output level of the mid frequency audio signal or that of the rear speakers.

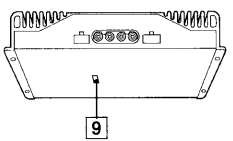
3 SUBWOOFER LEVEL (output) control
For adjusting the output level of the low frequency audio signal.

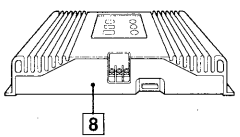
4 HIGH-MID CROSSOVER POINT (FRONT HI-PASS) (filter selector) switch
3-way system: for selecting the crossover frequency point (3.5K, 5K or 7KHZ) for the high-mid-range audio signal. (The frequencies below the selected point for the high-range audio signal will be cut off. At the same time the frequencies above that point for the mid-range audio signal will be cut off as well.)
2-way system: for selecting the crossover frequency point (70, 100 or 140HZ) for the front channels. (The frequencies below the selected point will be cut off.)

5 MID/REAR HI-PASS (filter selector) switch
For selecting the crossover frequency point (70, 100 or 140HZ) for the mid-range audio signal or that of the rear speaker outputs. (The frequencies below the selected point will be cut off.)

6 SUB WOOFER LOW-PASS (filter selector) switch
For selecting the crossover frequency point (70, 100 or 140HZ) for the low-range audio signal. (The frequencies above the selected point will be cut off.)







7 Low-range output terminals
An extra amplifier for sub-woofers can be connected to these terminals. (The output level and cut off frequency point are adjustable with the SUBWOOFER LEVEL control and SUB WOOFER LOW-PASS switch.)

8 POWER/PROTECTOR indicator
Lights up in green while the unit is in operation. The color will change from green to red and the unit will shut down when the protection circuit is activated due to a malfunction of the unit.

9 3 WAY/2 WAY selector
For selecting the setting of the 2-way or 3-way system.

Note
Be sure to select the appropriate setting before installing the unit.

Installation

Before Installa.tion

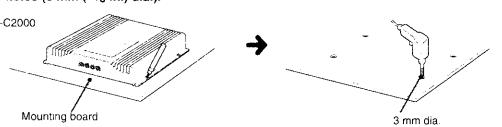
- **Be sure to select the setting of the 3 WAY/2 WAY selector on the bottom of the unit before installing the unit. (See page 10 for details.) If the setting is not correct, the sound may be distorted and the speakers may be damaged.**
- Install the unit inside the trunk room.
- Choose the mounting location carefully so that the unit will not interfere with the normal driving functions of the driver and that the unit will not be exposed to direct sunlight or hot air from the heater.
- The board to which this unit is to be mounted has to be more than 15 millimeters (mm) ($^{19}/_{32}$ in.) thick and sound.
- Do not install the unit under the floor carpet, where the heat dissipation from the unit will be considerably impaired.

If you find it difficult to install the unit for yourself, consult the dealer.

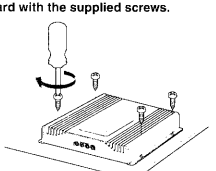
Trunk Installation

Prepare a sound mounting board with enough thickness (more than 15 mm) to install the unit securely.

1 Place the unit directly onto the mounting board and mark the four bolt holes, then drill the holes (3 mm ($^1/_8$ in.) dia.).



2 Secure the unit to the board with the supplied screws.



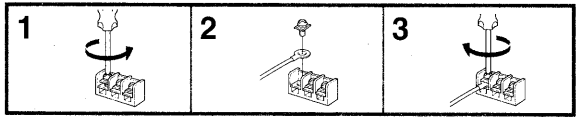
3 Install the unit in the trunk room.

Connections

Caution

- Before making any connections, disconnect the ground terminal of the car battery to prevent short circuits.
- Connect the red power supply lead only after all the other leads have been connected.
- **Be sure to connect the ground lead of the unit securely to a metal part of the car. A loose connection may cause a malfunction of the unit.**
- If you place the power supply lead too close to the input or output cords, it may cause some interference noise. Try to place them away from each other.
- Due to the built-in high-power amplifier, make sure that the speakers have adequate power handling capacities. If you use the speakers with lesser capacities, such as the ones supplied to a car, they can be damaged.
- Do not connect any active speakers (with built-in amplifiers) to the speaker leads of the unit. Doing so may damage the active speakers. Therefore, be sure to connect the passive speakers to these leads.
- Do not connect the ⊖ terminal of the speaker system with the car chassis, and never connect the ⊖ terminal of the right speaker with that of the left speaker.
- If your car is equipped with a computer navigation system etc., do not disconnect the ground wire from the car battery. If you do so, the memories of the computer may be erased. In such a case, make the connections without removing the ground wire but be sure to connect the + 12 volt input lead only after all the other connections are completed to avoid short circuits.
- This unit handles a current over 30 amperes at maximum power output. When connecting GND and + 12V terminals of the unit, be sure to use a lead whose sectional area is equal to or greater than 5 mm², and whose thickness is equal to or greater than 10-gauge (AWG-10), so as to take advantage of the performance of the amplifier.

Make the terminal connections as illustrated below.

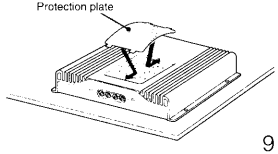


When you tighten the screw, be careful not to apply too much torque* as doing so may damage the screw.

*The torque value should be less than 1 N•m.

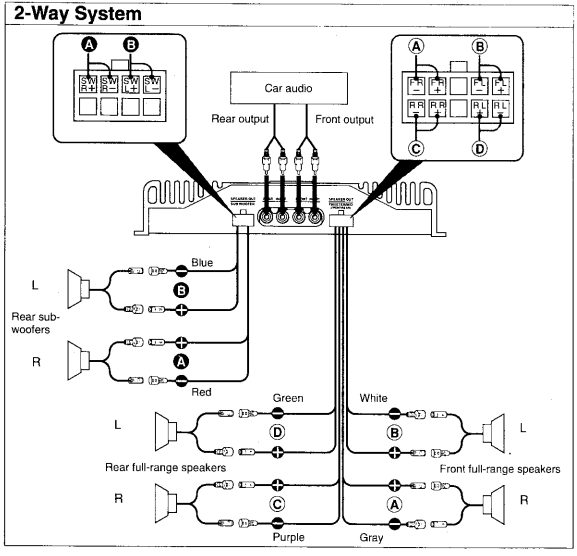
Installation of the Protection Plate

When all the connections are made and all the settings of the controls and switches are completed, attach the supplied protection plate to prevent the settings of switches and controls to be accidentally changed.



Examples of System Connection

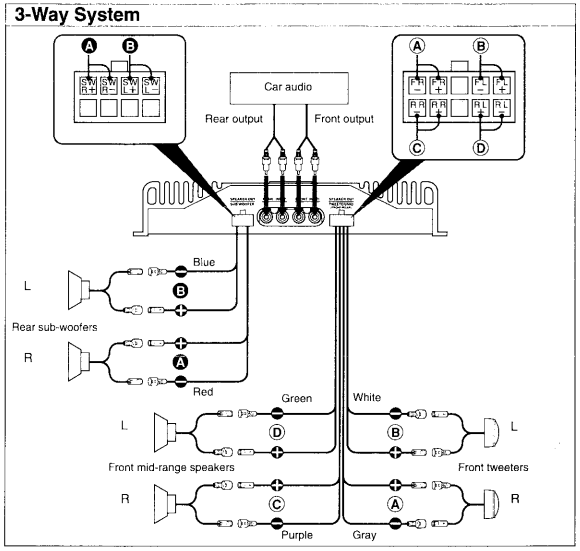
2-Way System



Notes

- **Set the 3 WAY/2 WAY selector to the 2 WAY position.**
- The balance of the outputs between the front and rear speakers can be adjusted by the fader control of the car audio.
- The output level of the sub-woofers will not be affected by the fader control.
- If your car audio has only 2 channels available for the audio outputs, connect them to the FRONT INPUT jacks. In this case, the output signals for the rear speakers will be the same as those of the front speakers; therefore adjust the fader control to the center position.

3-Way System



Notes

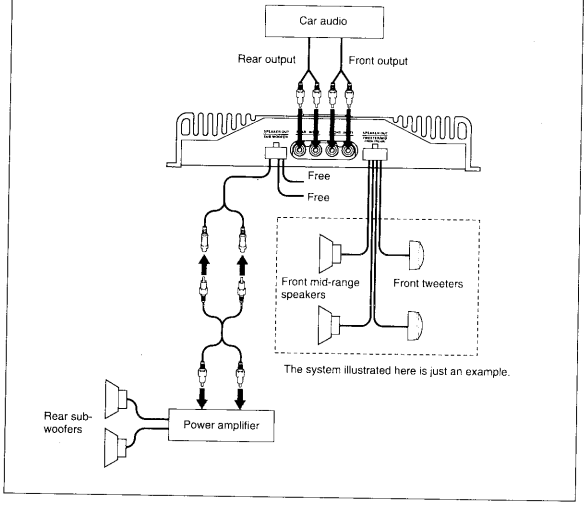
- **Set the 3 WAY/2 WAY selector to the 3 WAY position.**
- In this setting the fader control of the car audio will function in a normal manner; therefore you can adjust the volume of the rear sub-woofers.
- If your car audio has only 2 channels available for the audio outputs, connect them to the FRONT INPUT jacks. In this case, the output signals for the rear sub-woofer will be same as the constituent of the low-range frequencies going into the front speakers; therefore adjust the fader control to the center position.

CAUTION

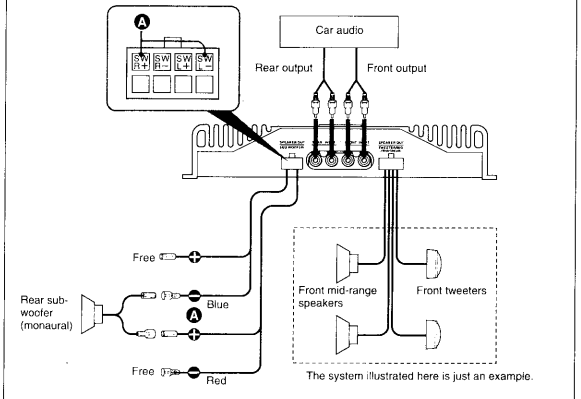
Do not move the setting of the 3 WAY/2 WAY selector after all the connections have been completed as doing so may damage the tweeters.

Examples of System Connections

Additional Power Amplifier for Rear Sub-Woofers



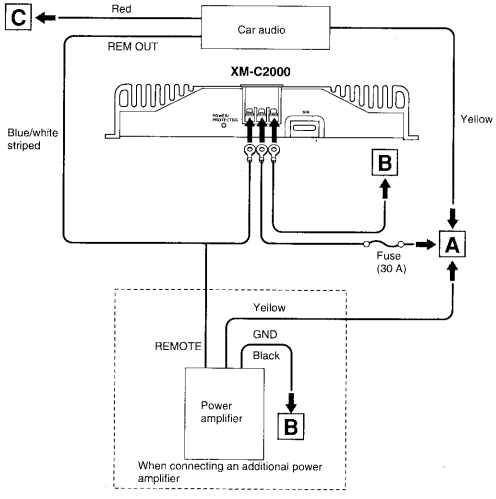
Using a Sub-Woofer as a Monaural Speaker



Note
If you wish to use a sub-woofer as a monaural speaker, connect the speaker as illustrated above. The output signals of the sub-woofer will be the combination of both right and left output signals.

Examples of System Connection

Connections of the Leads



A To the +12 volt terminal of the car battery
B To the metal part of the car
C To the +12 volt power terminal which is energized in the accessory position of the ignition key

Output Adjustments

When you are installing either a 2-way or 3-way system, adjust the level of the mid-range sound first, then the high and finally the low.
Make sure that the low sound is turned down completely while adjusting the high and the mid-range sound. If the low sound is present, it will be difficult to balance the overall sound.
After these adjustments are completed, turn up the low sound and adjust the whole balance.

2-Way system

1 Turn down the volume of the car audio completely. Then adjust the crossover frequencies to fit the connected speakers' frequency response ranges. See page 17 about the crossover frequencies.
2 Set the HIGH/FRONT LEVEL and the MID/REAR LEVEL controls to the center positions and the SUBWOOFER LEVEL control to the MIN position.
3 Play back some music and turn up the volume to a moderate level with the car audio.
4 Adjust the HIGH/FRONT LEVEL and the MID/REAR LEVEL controls to the optimum level. You can adjust the fader control of the car audio to get the same effect.
5 While checking the congeniality of the audio relationship between the speakers to be smooth and natural by playing back some music with a lot of bass sound, adjust the SUBWOOFER LEVEL control to balance the sound.
6 If the congeniality of sound is not smooth, readjust the LEVEL controls. If such measures do not improve the situation, turn down the volume control of the car audio completely and rearrange the settings of the filter selector switches and then readjust the LEVEL controls.
7 Repeat steps 1 to 6 until the optimum sound is achieved.

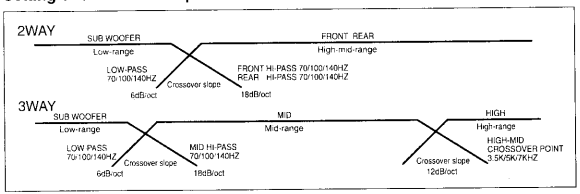
3-Way system

1 Turn down the volume of the car audio completely. Then adjust the crossover frequencies to fit the connected speakers' frequency response ranges. See page 17 about the crossover frequencies.
2 Set the HIGH/FRONT LEVEL and the MID/REAR LEVEL controls to the center and the SUBWOOFER LEVEL control to the MIN position.
3 Play back some music and turn up the volume to a moderate level with the car audio.
4 Adjust the HIGH/FRONT LEVEL and the MID/REAR LEVEL controls to the optimum level.
5 While checking the congeniality of the audio relationship between the speakers to be smooth and natural by playing back some music with a lot of bass sound, adjust the SUBWOOFER LEVEL control to balance the sound.
6 If the congeniality of sound is not smooth, readjust the LEVEL controls. If such measures do not improve the situation, turn down the volume control of the car audio completely and rearrange the settings of the filter selector switches and then readjust the LEVEL controls.
7 Repeat steps 1 to 6 until the optimum sound is achieved.

Crossover Frequencies

Set the crossover frequencies by changing the setting of each filter selector switch to suit the frequency response of the connected speakers. See the diagram below.

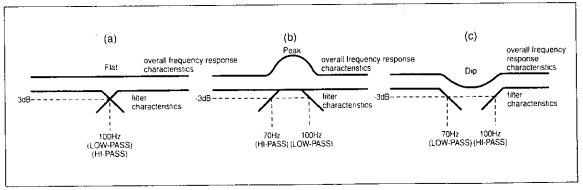
Setting of crossover frequencies



Congeniality of Audio Relationship — Setting of Filter Selector Switches

If the SUB WOOFER LOW-PASS and MID/REAR HI-PASS filter selector switches are set at the same crossover frequency points, both audio compasses will drop by 3 dB when they meet and the overall frequency response will be flat. See diagram (a). If the filter selector switches are set to different frequencies, the overall frequency response characteristics may have uneven sections. See diagram (b) and (c).

However, in some cases depending on the different types of car and the location of the speakers, these settings may improve the overall sound.



Block Diagram